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AUTHOR Pace, C. Robert; Rosenstein, Carolyn
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ABSTRACT

Based on a national followup survey of college freshmen conducted by the Higher Education Research Institute, the University of California (UC) respondents were singled out for examination. In the spring of 1977, the national survey was sent to freshmen who had entered college in the fall of 1970. The UC sample of 4,240 freshmen attended either the University of California at Los Angeles, Riverside, Santa Barbara, or the Santa Cruz campus. Information is presented on the respondents' job status, job satisfaction, vocational motivation, job benefits, intellectual-cultural benefits of college, personal development benefits of college relationships among educational benefits, and nongraduates and non-UC graduates. Among the findings are that of the 1,080 UC freshmen who replied to the questionnaire, nearly nine-tenths had earned a bachelor's degree, and about 60 percent of the graduates went on to graduate and professional school. About 60 percent of the respondents were attending school at the time they filled out the questionnaire, nearly seven years after their entrance as freshmen. Forty-five statistical tables are presented. (SW)

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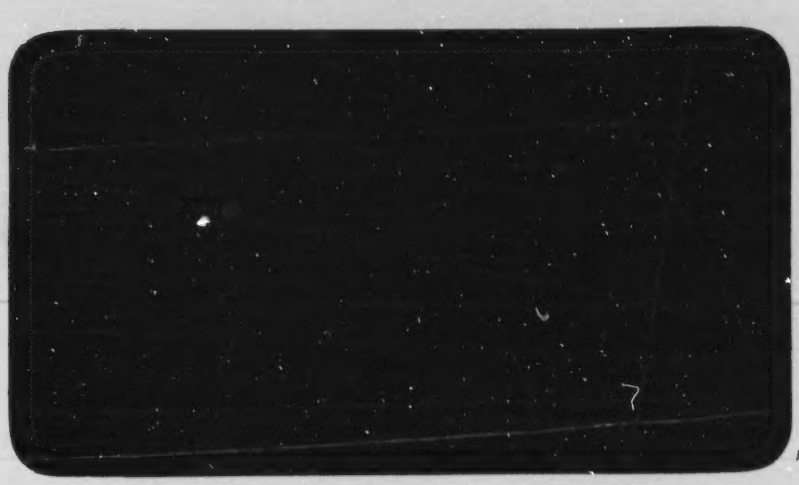

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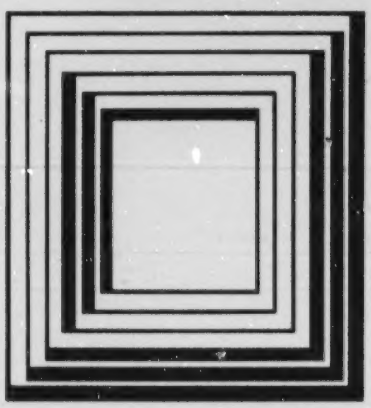

GRADUATE SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA, LOS ANGELES

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SEVEN YEARS LATER

EDUCATION AND WORK: A 1977 SURVEY OF STUDENTS WHO ENTERED THE UNIVERSITY OF CALIFORNIA IN 1970

by C. Robert Pace and Carolyn Rosenstein

June 1978

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Preface

The Higher Education Research Institute, in Westwood, received a grant from the National Institute of Education for a nationwide follow-up survey of freshmen who entered college in the fall 1970 to determine what they were doing in the spring 1977, some seven years later, with respect to employment, further education, and other aspects of their lives. The study was directed by Dr. Lewis Solmon. Especially in recent years there has been much concern about the job market for college graduates and many people have questioned the relevance of college education to work. Dr. Solmon's survey questionnaire goes into some detail about the students' subsequent education and work experience, the nature of their employment and its relation to college courses and activities, their retrospective views about college, and their present condition and views not only about economic-occupational benefits of college but also about broader personal, social, and cultural benefits. Although the emphasis of the survey was upon the relationship between education and work, the range of its content also permitted other kinds of relationships to be examined. A full report of this national survey will be written by Dr. Solmon and his colleagues.

The present report is focused upon one piece of the national study --namely on the responses received from those young men and women whose college experience began at the University of California. The population base for the national survey was a ten percent sample of the

more than 300,000 students who had filled out the American Council on Education's freshmen survey questionnaire when they entered college in the fall of 1970. There were four campuses of the University of California that had used the ACE questionnaire in 1970--UCLA, Riverside, Santa Barbara, and Santa Cruz--with a total of 4,240 of their freshmen having filled out the questionnaire at that time. Given only a ten percent sample, one can readily see that the number of UC responses which might have been obtained just from the national survey would be much too small for any reliable analysis (424, minus bad addresses, minus non-returns, etc., would probably result in about 120 responses). Consequently we asked for and received financial assistance from President Saxon's office in order to include all 4,240 of the 1970 freshmen group in the follow-up study, hoping thereby that the number of responses might be large enough and reliable enough to warrant some conclusions about UC and some comparisons between UC and the national study. The Higher Education Research Institute included this larger UC group in its mailing. UCLA's Laboratory for Research on Higher Education then analyzed the results from this UC segment.

Carolyn Rosenstein, co-author of this report, is a doctoral candidate in the Sociology department. She participated actively in all phases of the study, handled all the computer work, and prepared initial drafts of this final report. From my perspective, her contribution was both essential and excellent. In the early phases of the work Cara Anderson, another doctoral candidate in Sociology, also contributed in many helpful ways to the project. From the Higher Education

Research Institute, Dr. Lewis Solmon, director of the national study, and Mrs. Nancy Ochsner, research associate, shared all of their data with us and their interpretations of it.

The data from the national study, as of the time of writing this report, have not yet been completely analyzed; and the analyses made to date do not include special tabulations of responses from students at other State and private universities. Our own report, then, is limited to information about students who began their higher education at UC. Most of them subsequently graduated from UC; some transferred and later graduated from other institutions; and some have not yet graduated.

C. Robert Pace
Director, Laboratory for Research
in Higher Education

The Study and the Sample

The questionnaire, prepared and distributed for this study by the Higher Education Research Institute, was titled "Project on Education, Work, and Leisure." Eight pages in length, and covering 57 topics, the actual number of items to be answered was well over 350, and for some it could have been at least 500. It was not the sort of inquiry one could fill out during TV commercials or while having coffee at breakfast. It surely required at least a half hour of rather close attention, and no doubt for some it may have required up to an hour or so. Many who received the questionnaire did not fill it out. For those who did commit the necessary time and effort, one can reasonably assume a seriousness of purpose and a recognition that the subject-matter of the inquiry was relevant and important not only to them but also for higher education more generally.

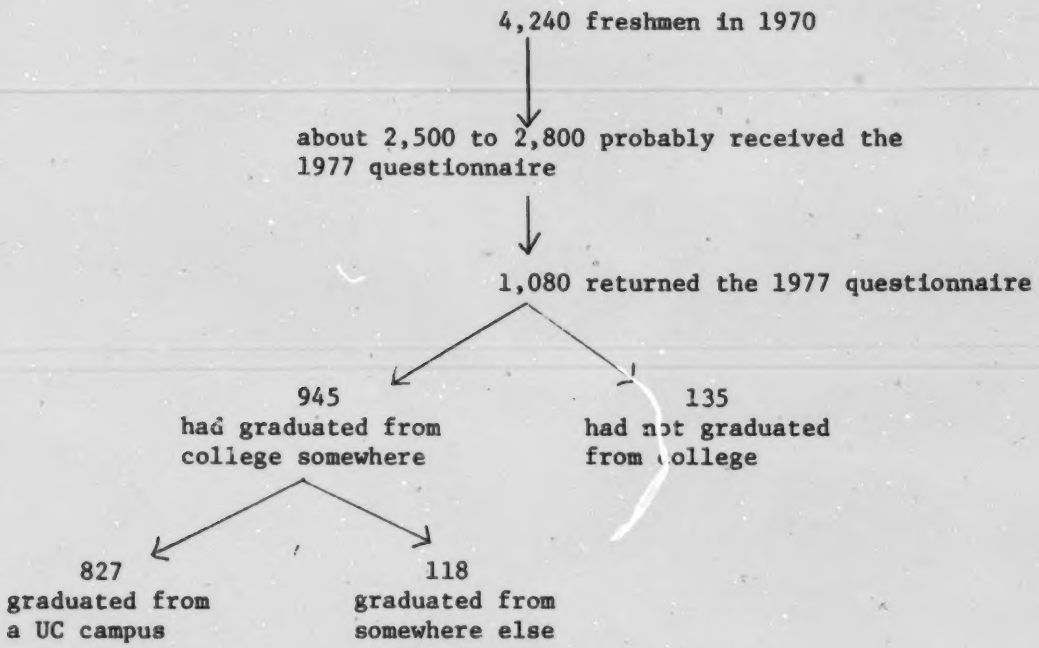
The subject-matter of the inquiry is indeed important for higher education. In the minds of many people education and work are clearly related and if they are not they should be. Many others believe that knowledge is its own reward and that what is worth knowing is not and should not be judged by what the labor market will buy. Many colleges and universities have specifically designed vocational curricula for undergraduates; many others do not. In institutions like the University of California occupationally relevant curricula are mainly in the graduate and professional schools, not in the undergraduate programs. Whatever one's views may be about education and work, the fact is that

the issue is being debated. The debate is not new. Surveys of college graduates in the depression years of the 1930's revealed that a college degree was not an insurance policy against the effects of an economic depression. Many found jobs hard to get. A survey made in 1936 found that 10 to 15 percent of those who graduated in 1932 had subsequently been unemployed for 12 months or more since their graduation. Nothing comparable to that has been true for graduates in the 1970's. The present survey seeks to enlighten the current debate with systematically collected information about recent graduates. What kind of jobs did these recent graduates get? Are they satisfied with their jobs? What do they think about the utility of their education in relation to their jobs? What, in retrospect, do they think about their overall college experience?

So, the intent of the inquiry was serious; and we believe the replies to it were serious. We regret that the replies were not more numerous. The chief cause for the relatively low rate of return was the inadequacy of available addresses. When students had filled out the freshmen survey in 1970, they gave their "home address." The questionnaires mailed in the spring of 1977 were sent to that address. In a great many cases it was no longer a valid address. In following-up the UC segment of the national survey, we got addresses from the alumni offices of the four campuses (UCLA, Riverside, Santa Barbara, and Santa Cruz) based on the graduation records four and five years after their admission in 1970. We were able to find new addresses for about

one-fifth of the group in this way, and to confirm old addresses for about another one-fifth of the initial group. But our best guess is that at least a third, and perhaps a little more, of the initial group of 4,240 UC freshmen who had answered the 1970 questionnaire never received the questionnaire mailed to them in 1977.

The results we did get from this UC mailing are shown in the following diagram.



The 1,080 questionnaire returns are 26% of the initial group of 4,240 freshmen. If our estimate of the number who probably received the questionnaire in the mail is reasonably accurate, we got returns from about 38% to 43% of those who actually received it.

Most of the present report concentrates on the 827 individuals who graduated from a UC campus. Nearly all of these individuals had graduated from the same campus they initially entered as a freshman--namely UCLA, Riverside, Santa Barbara, or Santa Cruz. A few, less than 13%, had subsequently graduated from one of the other UC campuses, most commonly Berkeley or Davis. The total group is composed of people who spent all, or very nearly all, of their undergraduate years within the University of California. Later in the report we will make a few comparisons between this UC group and those who graduated somewhere else, and those who did not graduate from college.

Before reporting results, however, we need to consider whether the 1,080 individuals who answered the 1977 questionnaire are a reasonably representative group, for it is only 26% of the initial population of 4,240. In this respect, we know that the percent of returns was about the same from each of the four campuses--Santa Barbara 29%, Santa Cruz 28%, UCLA 24%, and Riverside 22%. We also know that the characteristics of the freshmen who responded to the 1977 questionnaire are in many ways nearly identical with the total group of freshmen--with two exceptions. The response group includes a higher proportion of women and of minorities. These similarities and differences are shown in Table 1. The respondents, compared with the total group, came from similar economic and educational backgrounds, had similar educational aspirations and expectations, and similar academic interests (major field). In short, the characteristics of the freshmen who subsequently responded to the 1977 questionnaire reflect very closely the characteristics of the total group of freshmen.

Table 1

Similarities between Respondents and the Total Freshmen Group

	All of the 1970 freshmen group (N=4240)	Those freshmen who subsequently responded to the 1977 questionnaire (N=1080)
Sex		
Men	47%	41%
Women	53%	59%
Race		
White/Caucasian	95%	89%
Other	5%	11%
Estimated parents' income		
Less than $10,000	19%	17%
Between $10,000 and $30,000	66%	70%
More than $30,000	15%	13%
Father's education		
Less than high school graduate	10%	9%
High school graduate	17%	17%
Some college	19%	17%
College graduate	30%	31%
Graduate or professional degree	25%	26%
Mother's education		
Less than high school graduate	8%	8%
High school graduate	29%	26%
Some college	29%	30%
College graduate	27%	28%
Graduate or professional degree	8%	9%
Highest degree planned by freshmen		
Bachelor's	23%	24%
Master's	34%	38%
Doctor's or advanced professional degree	42%	38%
Expected satisfaction with college		
"Very good chance" they will be satisfied with college	59%	62%
Anticipated major field		
Arts or humanities	26%	25%
Social sciences	28%	28%
Biological sciences	8%	8%
Physical sciences	11%	14%
Engineering	4%	4%
All other fields	22%	20%

Where Are They?
What Are They Doing?
How Do They Like It?

Still in School

Of the 827 individuals in our group of UC graduates, 143 had already obtained a Master's degree and 24 had earned a further advanced degree. In addition, 202 said they were presently working toward a Master's degree and 157 said they were presently working toward a doctorate or advanced professional degree. Nearly two-thirds of the group either have or are currently working toward an advanced degree. Still others, not presently going to school, say that they plan to get a Master's, Doctor's or advanced professional degree. Overall, four-fifths of the UC graduates plan to get an advanced degree. For most, the bachelor's degree is just a beginning. Fifty-eight percent of them, as of Spring 1977, were still going to school.

Of course, many of those who are in school are also working at jobs. Table 2 shows this school-work combination for men and for women. About two-thirds of the men are going to school; one-third are not. Among the women, roughly half are going to school and half are not. For 26% of the men and 14% of the women, going to school is their full-time preoccupation.

Table 2

Status of Graduates: In School, At Work

	Men	Women
Going to school--not working	26%	14%
Going to school--working part-time	20%	17%
Going to school--working full time	19%	22%
Totals	(65%)	(53%)
Working full-time--not going to school	28%	32%
Working part-time--not going to school	3%	7%
Not working or going to school	4%	9%
Totals	(35%)	(48%)

Working Full-Time or Part-Time

From Table 2, adding together those who have full-time jobs, irrespective of whether they are also going to school, we find that 47% of the men (28% + 19%) and 54% of the women (32% + 22%) are working full-time. Among those who are working part-time, 23% of the men and 24% of the women, nearly all of the men and most of the women are also going to school.

Not Working

There were 50 individuals (11 men and 39 women) out of the 827 who reported that they were neither working nor going to school. That represents 6% of the total group of 827. Does this mean that 6% of these UC graduates were unemployed? No. People who are not working

because they do not want to work and who are therefore not looking for work cannot properly be classified as unemployed. Twenty-six of these people (9 men and 17 women) were looking for work. They are the unemployed--3% of the total.

Of the eleven men not working, ten did have a job less than a year ago. Of the 39 women not working, 29 did have a job less than a year ago. Asked how long they had been looking for a job, 2 of the 9 men said less than one month, 4 said three to six months, and 3 said longer than six months. Among the 17 women looking for work, 5 said they had been looking less than one month, 7 said from one to six months, and 5 said longer than six months.

All who were neither working nor in school were asked why they were not presently employed. Thirty-three possible reasons were listed in the questionnaire and the respondents could check as many as applied to them. Reasons checked by four or more of the eleven men who were not working were "don't have right education," "don't like available jobs," "jobs pay too little." Reasons checked by ten or more of the 39 women were "want to travel," "job market too tight, no jobs," "lack skills for wanted job," "don't have job experience," and "don't know what I want to do." Eight of the women said they were busy with child care; eight said they preferred leisure; and nine said they didn't like the jobs that were available.

Occupations

The occupations or lines of work these former students are in, without regard to whether they are students as well as workers, are shown in Table 3. For the women, more than a third are in teaching or in clerical jobs. Most of the ones in teaching jobs are also going to school. Most of those in clerical jobs are not going to school. Most of the women in scientific research are students holding part-time jobs. Among the men, most of those in scientific research are also students. The same is true of those in semi-skilled work: they are students with part-time jobs.

Considering only those who are working full-time and no longer in school, the occupation of about half of the men is one related to business (business executive, accountant, sales, business owner). For women working full-time and no longer in school, the occupation of one-fourth of them is clerical work, and for one-fifth it is business. Occupations which require several years of professional training beyond a bachelor's degree do not appear in Table 3 for the simple reason that the students have not been out of college long enough to have entered those fields.

Table 3

Current Occupations Accounting
for 3% or More Graduates

Employed Men		Employed Women	
Scientific research	10%	Teacher	21%
Business executive	10%	Clerical	17%
Semi-skilled	8%	Business executive	7%
Teacher	8%	Scientific research	6%
Engineer	6%	Semi-skilled	5%
Clerical	6%	Skilled	4%
Skilled	6%	Nurse	4%
Sales	5%	Social work	3%
Accountant	5%	Writer	3%
Computer programmer	4%	Sales	3%
Law	3%	Computer programmer	3%
All other	29%	All other	24%

Employers

The largest number of those who are still students and who have part-time jobs are employed by colleges and universities. Many of them in this category are probably teaching assistants or research assistants. Women who work full-time and are also going to school are employed mainly by elementary or secondary schools or by human services organizations. Among the full-time workers who are no longer going to school, the largest proportion of men (26%) and also the largest proportion of

women (19%) are employed by "other business or service organizations." These and other data are shown in Table 4. If one combines the various employer categories to make two groupings (educational, human services, and government employers for one and business-related employers for the other), as shown at the bottom of Table 4, several major differences are apparent. Most men working full-time and no longer in school are employed by business organizations. Women in that same status are about equally divided between business and non-business employers. In contrast, the men and women who are still going to school, whether employed full-time or part-time, are for the most part (half to three-fourths of them) employed by educational, human services, or governmental organizations.

Table 4

Types of Organizations Where Graduates Work

	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
Colleges or universities	5	13	13	12	45	43
Elementary or secondary schools	7	11	13	34	4	15
Human service organizations	5	13	13	20	15	12
Government (local, State, Federal)	9	14	10	3	4	3
Manufacturing or construction	16	4	19	7	0	2
Retail or wholesale organizations	12	12	2	10	6	2
Commerce, finance, insurance, real estate	12	11	8	4	4	8
Transportation, utilities, agriculture, mining	7	3	4	0	2	0
Other business or service organizations	27	19	18	10	20	15
	100%	100%	100%	100%	100%	100%
All educational, human services, and government organizations combined	26	51	49	69	68	73
All business related organizations	74	49	51	31	32	27
	100%	100%	100%	100%	100%	100%

General Job Satisfaction

One item in the questionnaire read "In general, how well satisfied are you with your current or most recent job?" The responses with reference to their current job are shown in Table 5.

Table 5

General Job Satisfaction

Percent Who Are--	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
Very satisfied	39	32	51	41	44	48
Somewhat satisfied	49	46	38	41	47	36
Not satisfied	12	22	11	18	9	16
	100%	100%	100%	100%	100%	100%

Although the proportions saying they were "very satisfied" are generally between one-third and one-half, relatively few of the men (11% overall) but somewhat more of the women (19% overall) said flatly that they were "not satisfied." The proportions who are "very satisfied" are greater among workers who are also continuing their education than among those who are no longer in school.

Satisfaction with Specific Aspects of Jobs

Despite the fact that these UC graduates are very recent graduates, having got their bachelors' degrees only two or three years ago, and that their jobs would have to be described as "entry level" positions

or in many cases as "temporary or tentative" positions because they are still going to school, most of them appear to be "very well satisfied" or "somewhat satisfied" with many aspects of their work. The data are shown in Table 6. In most aspects of their jobs--with income, autonomy and independence, challenge, extent of responsibility, the competence of their colleagues, variety of activities--the proportions who are very or somewhat satisfied are generally from three-fourths to more than nine-tenths of the group. In nearly every aspect of work, the smallest proportions expressing satisfaction are found among the women who are working full-time and no longer going to school (many of whom, we noted earlier, described their jobs as "clerical").

As to how satisfied they are with opportunities to use their training in their jobs, there is a clear difference in the responses of those who are still in school and those who are not. Four-fifths of the students who have part-time jobs feel somewhat or very satisfied with the opportunity those jobs provide for them to use their training. The proportion is somewhat lower for students who have full-time jobs (about three-fourths). For those who are no longer students, the proportion is still lower (69% of the men and 55% of the women). Among this last group of graduates, reversing the above percentages, nearly a third of the men and nearly half the women are not satisfied with the opportunity their present jobs give them to use their training. One might well wonder, of course, what that training could have been, since most undergraduate programs at UC are not vocational training programs.

Table 6

Satisfaction with Various Aspects of Current Job

Job Aspects	Percent "Very" or "Somewhat" Satisfied					
	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
Autonomy, independence	86	81	96	81	94	88
Competency of colleagues	84	79	86	85	94	92
Extent of responsibility	85	79	92	86	89	83
Income	85	82	83	76	87	81
Variety in activities	86	75	83	83	77	83
Challenge	84	73	88	77	83	82
Opportunity for creativity	76	61	71	70	76	75
Opportunity to use training	69	55	76	72	81	80
Opportunities for advancement	70	56	83	62	57	61

Satisfaction with Occupation

Overall, less than half (38%) of the recent graduates feel that they are now working in the occupations they prefer. Since many of them are still in training for what they hope will be their eventual occupation, it is not surprising that they are not yet in their preferred occupation. This is not true, however, for the women who are full-time employees and also going to school. For them, nearly half (45%) are in a line of work they prefer and 70% are in the occupation they feel best trained for. These data are shown in Table 7.

Table 7

Proportions Working in Occupations They Prefer and for which They Feel Best Trained

Percent Who Are--	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
In occupations they prefer	47	28	40	45	33	42
In occupations best trained for	62	42	53	70	46	62

Relevance of Education

Most of the recent graduates believe that particular courses in their major field, other particular courses, and especially "college study in general" have contributed "very much" or "somewhat" to their acquisition of knowledge and skills required to perform their current jobs. These results are in Table 8. More specific data on the use of content from the major field in these jobs are shown in Table 9. Generally from a third to more than half say that they frequently or almost always use content from their major field on the job. The proportion is lowest (32%) for women who are no longer in school, many of whom have clerical jobs. The proportions are highest (49% men and 58% women) for students who have part-time jobs, many of whom are probably teaching or research assistants. Except for women working full-time and not in school, the proportions who say they frequently or almost always use their major field content are twice as great or greater than the proportions who say they never use it.

Table 8

Contributions to the Acquisition of Knowledge or Skills Required to Perform Current Job

Contributions from--	Percent Indicating "Very Much" or "Somewhat"					
	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
Particular course(s) in major field	69	56	76	67	58	80
Other particular college course(s)	56	62	79	68	63	78
College study in general	71	77	82	91	73	86

Table 9

Use of Content of Courses in Major Field in Current Job

Frequency of use--	Full-Time Workers		Students Full-Time Workers		Students Part-Time Workers	
	Men	Women	Men	Women	Men	Women
Almost always or frequently	45	32	43	45	49	57
Sometimes	17	23	24	18	22	15
Rarely	16	19	24	15	9	12
Never	22	26	9	22	20	16
	100%	100%	100%	100%	100%	100%

Asked to describe the general relationship between their current job and their major field of study, about 42% overall said the two were "closely related," about 26% said "somewhat related," and 31% said "not related." The differences between the various categories of workers are shown in Table 10. Among the full-time workers, more men than women see the relationship as close. Among the part-time workers, more women than men see the relationship as close. Again in this table, as in several previous ones, it is the women no longer in school who are most likely to find themselves in jobs having no relation to their major field (44% of them).

There are doubtless a number of quite plausible reasons for the fact that a sizeable minority of these recent graduates are in jobs unrelated to their college major. For one, a majority of the graduates are not yet working in their preferred occupation. For another, some of them (39%) said they had not decided on a career until after they graduated from college; and for these individuals the question of relationship is a bit peculiar--namely the relationship between a major and a line of work they had not yet chosen. For still another reason, as will be shown later in the report, many people said that vocational considerations were not of primary importance in their choice of a major field when they were in school.

Despite all of the above, these recent graduates, in referring to their current job, said "I'm glad I had the college education I did." Regardless of whether their jobs were full-time or part-time, or whether they were continuing in school or not, from three-fourths to more than four-fifths of the men and of the women checked that positive statement.

Table 10

Relation of Current Job to Major Field of Study

Relationship--	Full-Time Worker		Students Full-Time Worker		Students Part-Time Worker	
	Men	Women	Men	Women	Men	Women
Closely related	44	25	48	41	44	55
Somewhat related	28	31	30	19	26	21
Not related	28	44	22	40	30	24
	100%	100%	100%	100%	100%	100%

Summary of Job Status

From this section of the results we see that most of these recent graduates are still going to school. About one-fourth of the men and one-sixth of the women are devoting their full time to graduate and professional school and are not in the labor force at all. Others still in school also have full-time jobs or part-time jobs. Less than a third of the total group are working full time and no longer going to school. The significance of this for the present survey of education and work, as applied to the population of UC graduates, is that the survey is premature for this group. They are still preparing for their occupations. The relationship between education and work has not yet been established, nor can it be established until several years after training in graduate and professional school has been completed. As we said in the opening paragraph of this section, "For most, the bachelor's degree is just a beginning."

To interpret fairly the responses of these graduates to such matters as job satisfaction, relation of jobs to major field, use of training in jobs, etc., one needs to remember, constantly, that in many cases the responses refer to temporary jobs, part-time jobs, and other sorts of jobs that might be available prior to the completion of graduate and professional school training. Despite all this, we nevertheless find that the jobs they do currently have are regarded as satisfying in many respects.

Job Satisfaction

In this section we examine further the data about job satisfaction. For college graduates, what are the characteristics of jobs that seem to provide satisfaction? Are there differences in job satisfaction related to occupational fields, to type of employing organization, to the major field of study in college, and to the relationship between college major and the job?

In the previous section, discussing the responses of people in different employment categories (students working part-time, students working full-time, and full-time workers who are not going to school), we necessarily excluded individuals who did not fall into any of those categories. These were full-time students not otherwise working (26% of the men and 14% of the women), those who were neither working nor going to school (4% of the men and 9% of the women), and those who were not going to school but had only part-time jobs (3% of

the men and 7% of the women). These categories combined resulted in excluding 33% of the total group of men graduates and 30% of the women.

In this section, most of the cases previously excluded can now be included because the questionnaire item referring to job satisfaction could be answered with reference to their current or most recent job. Nearly everyone (all but 7%) had in fact held a job at some time following graduation, at least temporarily.

The responses of this larger group to the question "In general, how well satisfied are you with your current or most recent job?" are shown in Table 11. Overall, 37% are very satisfied, 41% are somewhat satisfied, and 22% are not satisfied. Job satisfaction is somewhat greater among the men than among the women.

Table 11

Job Satisfaction with Current or Most Recent Job

Percent Who Are--	Men	Women	Total
Very satisfied	40	35	37
Somewhat satisfied	42	41	41
Not satisfied	18	24	22
	100%	100%	100%

Job Characteristics Related to Satisfaction

The next two tables, Tables 12 and 13, show some of the characteristics of jobs that are related to satisfaction. In these tables the percentages do not add to 100 across the rows. Each percentage is independent; and should be read as follows: the first item in Table 12 is "job is at a professional level"--75% of the people who are "very satisfied" with their job say that the job is at a professional level; at the other end of the row, 14% of those who are "not satisfied" with their job also have jobs at a professional level. Among the people who are not satisfied with their jobs almost none of them (2%) are in jobs that fit their long-range goals or that fully utilize their skills. If the characteristics listed in Table 12 were unrelated to job satisfaction the percentages across each row would be of equal magnitude. All of the characteristics listed have some relationship to job satisfaction, but some of them are less definitive than others. For example, even among those who are very satisfied with their job only half say that the job fully utilizes their skills and only 38% say that they are well paid compared with people of similar education.

Table 12

Relationships between Overall Levels of Job Satisfaction and Various Job Characteristics

Proportions Ascribing Various Characteristics to Their Jobs	Among Those Whose Overall Level of Job Satisfaction Is-- Very Satisfied	Somewhat Satisfied	Not Satisfied
Job is at a professional level	75	50	14
Job fits their long-range goals	74	34	2
Have sufficient status or prestige in their jobs	67	30	8
Job offers good prospects for advancement	66	40	6
Most of their colleagues are trained in same field	52	40	19
Skills are fully utilized in their job	50	12	2
Well paid compared to people of similar education	38	25	4

Attitudes about other job characteristics are shown in Table 13. For example, among those who are very satisfied with their job, about three-fourths are also very satisfied with the responsibility, challenge, and congenial work relationships their jobs provide; about two-thirds are also very satisfied with the autonomy, variety, status, and opportunity to use training in their jobs; but only 42% of the very satisfied people are also very satisfied with their job income. Among people who are not satisfied with their jobs, few are very satisfied with any of the specific characteristics listed in the Table. The one exception is

"congenial work relationship"--where 31% of those who are not satisfied with their job are nevertheless very satisfied with the congenial work relationships in the job.

Table 13

Relationships between Overall Levels of Job Satisfaction and Satisfaction with Specific Job Characteristics

Proportions "Very Satisfied" with Specific Job Characteristics	Among Those Whose Overall Level of Job Satisfaction Is-- Very Satisfied	Somewhat Satisfied	Not Satisfied
Extent of responsibility	76	33	4
Challenge	75	29	4
Congenial work relationships	75	42	31
Autonomy, independence	69	38	11
Variety in activities	67	30	6
Status of position	67	23	4
Opportunity to use training	65	29	5
Income	42	24	8

Occupational Fields and Types of Employers

From Table 14 it is obvious that the level of job satisfaction differs from one occupational field to another. In this table the percentages add to 100 across each row; and one should relate these percentages to the overall percentages that were reported in Table 11. Table 11 showed that 37% of the total group of graduates were "very satisfied" with their jobs. From Table 14, the percentages who are very satisfied range from 51% of those in occupational fields related to science and math, to only 14% of those who are in clerical fields. At the "not satisfied" end of the scale, almost no one in science and math (4%) or in arts (8%) was not satisfied; whereas from one-third to one-half of those whose work was described as clerical, skilled, or semi-skilled were "not satisfied." Among the total group of graduates, 22% had said they were not satisfied with their jobs.

The type of organization one works for has less relationship to job satisfaction than the type of work or occupational field one is in. There is, however, a clear difference between business and non-business organizations, as shown in Table 15. The highest proportions of very satisfied workers are employed by educational, governmental, or human services organizations; the lowest proportions of very satisfied workers are employed by organizations related to business.

Table 14

Relationships between Overall Job Satisfaction and Occupational Fields

Occupational Fields*	Overall Job Satisfaction: Very Satisfied	Somewhat Satisfied	Not Satisfied	
Education	46	41	13	100%
Business	38	43	19	100%
Health	39	41	20	100%
Science and math	51	45	4	100%
Arts	34	58	8	100%
Clerical	14	36	50	100%
Skilled	19	43	38	100%
Semi-skilled	17	42	41	100%
(Average)	(37)	(41)	(22)	

*Education = teachers, school counselors, school administrators
Business = executives, accountants, owners, salespersons
Health = physicians, nurses, therapists, lab technicians, pharmacists, clinical psychologists
Science and math = scientific researchers, engineers, computer programers, statisticians
Arts = actors, artists, musicians, writers

Table 15

Relationships between Overall Job Satisfaction and Type of Employing Organization

Different Types of Organization	Overall Job Satisfaction: Very Satisfied	Somewhat Satisfied	Not Satisfied	
Educational	45	41	14	100%
Human services	38	42	20	100%
Government	42	38	20	100%
Manufacturing, construction, transportation, utilities	23	52	25	100%
Retail, wholesale, commerce, insurance, real estate	30	38	32	100%
Other business, service establishments	30	42	28	100%

Major Field in College

How well satisfied these recent UC graduates are with their current or most recent job has a moderate relationship to the field they had majored in as undergraduates. What relates to job satisfaction more strongly, however, is the connection between the major field (whatever it may have been) and the job. This information is in Table 16. Among those whose current or most recent job is closely related to their major field, 53% are very satisfied with the job and only 8% are not satisfied. When there is no connection between the job and the major field, only 19% are very satisfied and 41% are not satisfied. As to particular major fields, the percentages in the table show some variation from one field to another; but given the fact that the total group of graduates

who were very satisfied with their current or most recent job was 37% even the lowest group, the arts and humanities majors, is only six percentage points lower than what is characteristic of the total group.

Table 16

Relationships between Overall Job Satisfaction and Undergraduate Major Field

	Overall Job Satisfaction			
	Very Satisfied	Somewhat Satisfied	Not Satisfied	
Among those who had majored in--				
Arts or humanities	31	42	27	100%
Social Sciences	37	37	26	100%
Biological Sciences	33	52	15	100%
Physical Sciences	38	49	13	100%
Engineering	45	33	22	100%
All other fields	49	38	13	100%
Among those whose present or most recent job is--				
Closely related to their major field	53	39	8	100%
Somewhat related	40	47	13	100%
Not related	19	40	41	100%

Time of Career Choice

Among both the men and women who are very satisfied with their current or most recent job there were only moderate differences in the time they made their career choice, as indicated in Table 17. An early decision was no better than a late decision for the women, and not much better for the men. The relationship between time of decision and job satisfaction is stronger among those who are not satisfied with their current or most recent jobs--and especially for the women. Fifty-one percent of the women who are not satisfied with their jobs had not made a career choice until after graduation.

Table 17

Relationships between Overall Job Satisfaction and Time When Career Choice Was Made

	Among Those Whose Overall Job Satisfaction Is--		
	Very Satisfied	Somewhat Satisfied	Not Satisfied
Time of Career Choice - MEN			
Before college	34	24	24
During college	40	44	38
After college	26	32	38
	100%	100%	100%
Time of Career Choice - WOMEN			
Before college	28	23	15
During college	41	40	34
After college	31	37	51
	100%	100%	100%

Summary of Job Satisfaction

For college graduates, job satisfaction is most influenced by such job elements as responsibility, challenge, and relation to long-range goals. It is also strongly influenced by variety in the job activities, by autonomy and independence, and by opportunities for advancement, in the use of their training, and by the status of the position. It is influenced, but less so, by income or by the belief that one is well paid in comparison with others, and still less so by other elements we have not reported in this section such as fringe benefits, job security, working conditions, and opportunities for leisure.

Basically, what seems most important to college graduates are the opportunities to use one's judgment and knowledge, to face challenge and responsibility, and to grow. As to college education itself, even among those who are "not satisfied" with their current or most recent job, a majority (52%) nevertheless said with reference to that job, "I'm glad I had the college education I did"; for those who are "very satisfied" with their job, 87% said "I'm glad I had the college education I did."

Vocational Motivation

Up to this point in our report we have looked at the current employment status of the graduates. We noted what they were doing and how they liked it; and we examined these conditions and satisfactions from two perspectives--the characteristics of the jobs themselves

which seem to provide satisfaction and the relationships between job satisfaction and college training. In this section we look at some of the data from a psychological perspective--namely, motivation toward economic and vocational goals.

Some students come to college with rather clear and strong economic and vocational goals in mind--to get a better job, to make more money, to prepare for graduate or professional school. Moreover, some students choose their major field for parallel economic and vocational reasons--a better chance to get a more meaningful job, a better chance to get a higher paying job, a better chance of admission to graduate or professional school. For most students, however, academic, intellectual and cultural reasons for coming to college and for choosing a major are more important than vocational reasons. The supporting evidence for these statements is shown in Table 18.

Very few people said that academic-intellectual-cultural reasons were not important to them in deciding to attend college. Indeed, the dominance of these reasons makes them almost a common denominator regardless of additional reasons that may have been very important to some students.

Vocational and economic reasons, on the other hand, were very important to some students and not important to others. Nearly everyone attached some or much importance to getting a better job; but a fourth of the students said that making more money and preparing for graduate or professional school were not important reasons for their going to college, and nearly two-thirds said they were not important reasons for their choice of a major.

Table 18

Reasons for Attending College and
Reasons for Choosing a Major

	Percent Indicating--			
	Very Important	Somewhat Important	Not Important	
Academic, intellectual, cultural reasons				
In deciding to attend college				
To learn more about things that interest me	76	22	2	100%
To gain a general education and appreciation of ideas	71	26	3	100%
To improve academic abilities	58	33	9	100%
In choosing a major--				
Intellectually challenging subject matter	63	29	8	100%
Greater breadth than other disciplines	29	33	38	100%
Special aptitude for subject	53	33	14	100%
Vocational and economic reasons				
In deciding to attend college--				
To get a better job	62	29	9	100%
To make more money	40	38	22	100%
To prepare for graduate or professional school	31	32	37	100%
In choosing a major--				
Better chance to get meaningful job	39	31	30	100%
Better chance to get higher paying job	10	26	64	100%
Better chance of admission to graduate or professional school	16	23	61	100%

Vocational Motivation Scale

Some writers about higher education believe that all students expect occupational and economic benefits from going to college, that students should have occupational goals (and the sooner the better) to guide their college work, and that those who do are likely to be more satisfied with college and with their subsequent jobs.

To examine these beliefs we have divided our sample of UC graduates into three groups defined as high, moderate, and low in the strength of their vocational orientation. The criteria for defining the groups consisted of the responses to all three of the vocational and economic reasons for going to college plus all three of the vocational and economic reasons for choosing a major. Reasons checked as very important were given two points, somewhat important one point, and not important zero. Thus, if a student had responded to all six items by checking "not important," his or her score on the vocational motivation scale would be zero; and if all six reasons were marked as very important the student's score would be 12.

The distribution of these scores is shown in Table 19. The modal score was six. Scores of five, six, and seven were arbitrarily defined as constituting the moderate group. The highest five scores, from eight to 12, defined the high group; and the lowest five scores, from four to zero, defined the low group. By examining the various combinations of responses (not shown here) it is possible to define the meaning of the high and low groups. Among those classified in the high group, 40% had checked "very important" to all three of the vocational reasons for going to college, and a total of 80% had

Table 19

Distribution of Scores on the
Vocational Motivation Scale

Score	Number	
12	15	
11	28	
10	35	High group 26%
9	54	
8	82	
7	101	
6	120	Moderate group 40%
5	110	
4	105	
3	78	
2	53	Low group 34%
1	25	
0	21	
	827	

checked "very important" to either two or three of those items. They had also, 60% of them, checked at least two of the vocational reasons for choosing a major as "very important." Among those classified in the low group, 64% had checked "not important" to all three or two of the three vocational reasons for coming to college; and 72% had checked "not important" to all three or two of the three vocational reasons for choosing a major. It seems reasonable to claim that these high and low groups are quite distinctively different in the strength of their vocational motivation.

Attitudes about the economic value of education provide a further clarification of the meaning of these high and low groups. One would expect that students who attached considerable importance to vocational and economic reasons for attending college and for selecting a major field would also be inclined to agree with statements that expressed the value of education in economic terms. That, indeed, is the case. Three times as many people in the high group as in the low group (39% vs. 12%) agreed with the statement that "The chief benefit of a college education is that it increases one's earning power." Twice as many people in the high group as in the low group (57% vs. 28%) agreed with the statement that "The value of a college education is determined by the labor market."

Still another clear differentiation between these high and low groups is in the time they decided on their careers. Here again one would expect that people with strong vocational motivation would be most likely to have made a career decision early. This relationship

is shown in Table 20. Twice as many people in the high group as in the low group (40% vs. 19%) had decided on a career before entering college. Among the high group four-fifths had made a career choice either before or during college; whereas half of the low group did not make a career choice until after graduating from college.

Table 20

Relationship between Vocational Motivation and Time of Career Choice

	Among Those Whose Vocational Orientation Was--		
Time of career choice	High	Moderate	Low
Before college	40	23	19
During college	41	46	32
After college	19	31	49
	100%	100%	100%

Differences Among Men, Women, and Major Fields

As Table 21 indicates, the proportion of men who have strong vocational motives is nearly twice as great as the proportion of women. Also, although 27% of the men were in the low group, the corresponding proportion of the women was 39%.

Differences in undergraduate major fields are shown in Table 22.

Table 21

Differences between Men and Women
in Vocational Motivation

	Vocational Motivation			
	High	Moderate	Low	
Men	36	37	27	100%
Women	19	42	39	100%
Total	26	40	34	100%

Table 22

Vocational Motivation and Undergraduate
Major Fields

	Vocational Motivation			
Among Those Who Majored In--	High	Moderate	Low	
Arts or humanities	10	38	52	100%
Social sciences	24	42	34	100%
Biological sciences	35	40	25	100%
Physical sciences	34	43	23	100%
Engineering	53	37	10	100%
All other fields	45	38	17	100%

Engineering is the only major field that is clearly dominated by students with strong vocational motives. In the biological and physical sciences the proportions of majors with strong vocational motivation are somewhat, but not much, larger than the proportions with low vocational motivation. The reverse is true in the social sciences. Very few people in arts and humanities came to college or chose that major for vocational reasons. In arts and humanities the vocational motivations of men and women were similar. The greatest differences in vocational motivation between men and women were among the social sciences majors—with 38% men and 16% women in the high group, and with 26% men and 39% women in the low group. In the biological sciences a larger proportion of men than of women had high vocational motivation (44% vs. 26%), but there were no differences in the proportions with low vocational motivation (24% men vs. 26% women). In the physical sciences, the high group included 38% of the men and 30% of the women; and the low group included 20% of the men and 26% of the women.

Differences in Occupational Fields

Looking at the occupational fields these former students are now in, shown in Table 23, one sees that in fields related to health, and to science and math (which includes engineering) the proportions of individuals who had strong vocational motivation are considerably larger than the proportions who had low vocational motivation. The opposite is true, and much more sharply, among those who are in the arts. Business fields, fields related to education, and skilled

fields all have roughly similar proportions from the high and low vocational motivation groups, with individuals in the low groups being somewhat more numerous. Relatively few people now in clerical or semi-skilled fields had strong vocational motivations as students.

It is of some interest to note that all occupational fields contain quite a few (a fifth to more than half) former students who had attached little or no importance to vocational reasons for going to college or choosing a major.

Table 23

Relationships between Vocational Motivation and Type of Current or Most Recent Occupations

Occupational Fields*	Vocational Motivation			
	High	Moderate	Low	
Education	20	50	30	100%
Business	26	39	35	100%
Health	47	33	20	100%
Science and math	41	36	23	100%
Arts	8	32	60	100%
Clerical	16	36	48	100%
Skilled	25	42	33	100%
Semi-skilled	11	53	36	100%

*See Table 14 for definitions.

Vocational Motivation, Job Characteristics and Satisfactions

Students who were in the high group on the vocational motivation scale are now somewhat more likely to have jobs which they describe as professional, as filling their long-range goals, offering good prospects for advancement, fully utilizing their skills, and paying well compared with people of similar education. They are also more likely to say, about their jobs, that they are satisfied with their career progress and that they do not feel underemployed. Differences between high and low groups on these job characteristics are typically about 15 percentage points. Both high and low groups, in about equal proportions, say that they have sufficient status or prestige in their jobs. The largest difference between high and low groups (22 percentage points) is that individuals in the high group are more likely to be in jobs where most of their colleagues were trained in the same field. These data are shown in Table 24.

The extent to which people are very satisfied with certain characteristics of their jobs--responsibility, challenge, congenial work relationships, autonomy, variety, and other aspects shown in Table 25--has very little relationship with the prominence of their economic and vocational motives when they were students. None of the differences between high and low groups are more than eight percentage points, except one. The exception is that the high group is much more likely than the low group (50% vs. 28%) to be "very satisfied" with the opportunity their job provides for them to use their training.

Table 24

Relationships between Vocational Motivation and Various Job Characteristics

Proportions Ascribing Various Characteristics to Their Jobs	Among Those Whose Vocational Motivation Was-- High	Moderate	Low
Job is at a professional level	66	52	40
Job fits their long-range goals	48	45	38
Have sufficient status or prestige in their jobs	42	37	39
Job offers good prospects for advancement	54	39	38
Most of their colleagues are trained in same field	52	41	28
Skills are fully utilized in their job	32	22	20
Well paid compared to people of similar education	34	26	17
Satisfied with career progress	60	47	41
Do not feel underemployed	54	47	39

Table 25

Relationships between Vocational Motivation and Satisfaction with Specific Job Characteristics

Proportions "Very Satisfied" with Specific Job Characteristics	Among Those Whose Vocational Motivation Was--		
	High	Moderate	Low
Extent of responsibility	44	44	40
Challenge	43	43	36
Congenial work relationships	57	50	49
Autonomy, independence	44	44	44
Variety in activities	43	36	38
Status of position	39	33	34
Income	32	27	24
Opportunity to use training	50	36	28
Opportunity for creativity	28	28	32

There is some relationship between vocational motivation and overall job satisfaction, as shown in Table 26. While 44% of the high group are very satisfied with their jobs, 33% of those who had said that vocational and economic reasons for attending college and choosing a major were of little or no importance are also very satisfied with their jobs. There are no differences of any significance between the moderate and low groups with respect to job satisfaction.

Table 26

Vocational Motivation and Job Satisfaction

Satisfaction with Current or Most Recent Job	Among Those Whose Vocational Motivation Was--		
	High	Moderate	Low
Very satisfied	44	35	33
Somewhat satisfied	44	38	43
Not satisfied	12	27	24
	100%	100%	100%

Regardless of the strength of one's economic and vocational motivations--whether high, moderate, or low--most of these former students indicated that they were very satisfied with college. Even among the low group, only 7% were "not satisfied." This is shown in Table 27.

Table 27

Relationship between Vocational Motivation and Satisfaction with College

General Satisfaction with College	Among Those Whose Vocational Motivation Was--		
	High	Moderate	Low
Very satisfied	69	60	60
Somewhat satisfied	30	35	33
Not satisfied	1	5	7
	100%	100%	100%

Summary of Relationships with Vocational Motivation

Men and women for whom economic and occupational considerations were prominent in their decision to attend college and in their choice of a major field also tended to view the value of education in economic terms, to choose majors which had rather specific occupational relevance (sciences and engineering), and, as graduates, to be in occupational fields where entry training was most needed (fields related to health and to sciences and engineering). They were more likely to be in jobs which they characterized as having long-range potential and as using their training. On the other hand, men and women for whom economic and occupational motivations were unimportant were just as likely as the others to have jobs which provide comparable levels of responsibility, challenge, independence, variety, and status. Moreover, with respect to general job satisfaction, the differences between those who had high vs. low vocational motivation were not great; and all groups were about equally well satisfied with college.

Job Benefits

In the next three sections of this report, we examine three different categories of educational benefits--job benefits, personal development benefits, and intellectual-cultural benefits. Later, we shall note the extent to which these different types of benefits are interrelated or relatively independent.

One item in the questionnaire was introduced as follows: "Looking back on your college education, please indicate the extent to which the following have been useful." To each statement listed beneath those instructions, the respondent could check "very useful," "somewhat useful," or "not useful." The statements related to job benefits, and the responses to them, are shown in Table 28.

College was seen as very or somewhat useful primarily in three job-related ways: it increased their chances of finding a good job (82%); it helped them clarify their life goals (77%); and it provided them with knowledge and skill they use in their job (68%). The item about life goals is not exclusively a job-related benefit; but in the questionnaire the items preceding and following it were specifically and clearly job-related and the responses to the item had a stronger association with those job benefit items than with the other types of benefits. So, we assume the response, at least for most of the former students, reflected a clarification of career goals.

Table 28

Distribution of Responses Regarding Utility of College Education for Job

Extent to which the Following Have Been Useful	Percent Indicating-- Very Useful	Somewhat Useful	Not Useful	
Bachelor's degree a factor in being hired	41	20	39	100%
Increased my chances of finding a good job	39	43	18	100%
Provided knowledge and skills I use in current job	34	34	32	100%
Helped me choose my life goals	32	45	23	100%
Bachelor's degree necessary for promotion	28	21	51	100%
Learned skill that enabled me to get first job	26	25	49	100%
Contacts with professors or friends helped me get my first job	16	12	72	100%

Basically then, college was viewed as useful in getting started in the job world and in clarifying goals. A majority (61%) also thought that having a bachelor's degree was a factor in being hired. College was seen as less useful in having provided a skill for their first job, or as necessary for promotion, or as having provided personal contacts that helped get their first job.

Job Benefits Scale

To get a single more reliable and stable index of job benefits attributed to college, we added the responses to all seven items--giving two points for each item marked "very useful," one point for each item marked "somewhat useful," and zero for items marked "not useful." The graduates' score on this set of items could therefore range from zero ("not useful" on any of the items) to 14 ("very useful" on all seven items). The distribution of scores is shown in Table 29. The grouping of these scores into high, moderate, and low categories is arbitrary, but deliberately sought to make the high and low groups of about equal size. The low group is very clearly defined in that a score of 3 or lower means that all or nearly all of the items must have been marked "not useful." In the high group, scores of 11 to 14 mean that all or nearly all of the items must have been marked as "very useful"; and this accounts for a majority of the individuals classified in the high group. Others in the high group checked most of the seven items very useful or somewhat useful.

Table 29

Job-Related Benefits Scale
Distribution of Scores

Score	Number	
14	17	
13	29	
12	45	
11	49	High group 31%
10	58	
9	58	
8	54	
7	87	
6	66	Moderate group 41%
5	63	
4	66	
3	73	
2	67	
1	56	Low group 28%
0	39	
	827	

Job Benefits Related to Vocational Motivation and Career Decision

One would expect that people who attributed the most job-related benefits to their college experience would also be most likely to have had fairly clear and strong vocational goals in mind. That this is so is evident from Tables 30 and 31. In both these tables, four-fifths of the people in the high job benefit group were also ones who had made a career choice either before or during college, and who had said that economic and vocational reasons for attending college and for choosing their major field were of much to moderate importance in their thinking. In contrast, among those attributing the least job utility to their education (the low job benefits group), nearly half had said that economic and vocational reasons were of little or no importance to them in deciding to attend college or in choosing their major and that they did not decide upon their career until after graduation from college.

Table 30

Relationship between Job-Related Benefits of College and Vocational Motivation

	Among Those Whose Job-Related Benefits Were--		
Vocational Motivation	High	Moderate	Low
High	41	23	14
Moderate	39	41	39
Low	20	36	47
	100%	100%	100%

Table 31

Relationship between Job-Related Benefits and Time of Career Choice

Time of career choice	Among Those Whose Job-Related Benefits Were-- High	Moderate	Low
Before college	33	23	22
During college	47	42	30
After college	20	35	48
	100%	100%	100%

Coming to college and choosing a major with strong vocational goals in mind, making a career decision before or during college, and subsequently attributing high utility to college with respect to job benefits are all clearly interrelated. Consequently, much of what is reported in this section where the graduates are divided into high, moderate, and low job benefits groups should be consistent with and reinforce the results in the previous section where graduates were divided into high, moderate, and low groups with respect to their vocational motivation. Reading some of the results one gets the impression that he has already seen them; but it is nevertheless useful to examine the results from this different perspective because it more clearly establishes a network of association among people, programs, and benefits which are all clustered around vocational and economic aspects of college attendance.

Job Benefits and Major Field

The students' major field is clearly related to the utility of college for jobs. In the most explicitly vocational field, engineering, nearly all who majored in it have found a high degree of job-related benefits. A majority of those who majored in physical sciences also subsequently found college highly useful in job-related ways. Three-fourths of the biological sciences majors were in the high or moderate job benefits groups; and even in major fields having the least apparent, and perhaps least intended, vocational emphasis--namely the arts and humanities and the social sciences--two-thirds nevertheless attributed high to moderate job utility to their college education. These data are in Table 32.

The contrast in job benefits between engineering on the one hand, and arts or humanities on the other, is highly consistent with the vocational motivation of students who chose those fields as previously reported in Table 22.

Table 32

Job-Related Benefits and Undergraduate Major Fields

Among Those Who Majored In--	Job-Related Benefits: High	Moderate	Low	
Arts or humanities	19	46	35	100%
Social sciences	24	42	34	100%
Biological sciences	37	38	25	100%
Physical sciences	54	33	13	100%
Engineering	79	16	5	100%
All other fields	41	39	20	100%

Job Status and Job Characteristics

Perhaps the attribution of job-related benefits to college is not mainly a function of college experiences or orientations but rather a function of what one's present circumstance happens to be in the job world after college. This is explored in the next four tables.

First, the current employment status of the graduates seems to have relatively little connection with job benefits attributed to college. Table 33 shows that whether one is now working full time and no longer going to school, or whether one is going to school and also working full or part time, has little relation to one's views about the utility of education for jobs. The percentages across the rows do not differ by more than five or six percentage points from what is characteristic (average) for the total population.

Table 33

Relationship between Job Benefits Scale
and Current Employment Status

Among Those Whose Employment Status Is—	Job-Related Benefits of College			
	High	Moderate	Low	
Working full-time, not going to school	36	38	26	100%
Going to school, and working full-time	30	44	26	100%
Going to school, and working part-time	42	38	20	100%
(average)	(36)	(39)	(25)	

From Table 34, however, one can see large differences that are dependent upon the occupational field of employment. Among those employed in science and math fields (which includes engineering), 66% attributed high job benefits to their college experience. Other fields generally on the high job benefits side of the ledger are education and health. Being in business is not particularly related to having gained high job benefits from college. It seems likely that many students who find themselves in business-related occupations are there by accident or necessity rather than by choice, and therefore do not attribute high job benefits to college. Obviously, too, people in clerical or semi-skilled fields are not really there by choice, and consequently attribute little utility to college with respect to those jobs.

Table 34

Relationships between Job-Related Benefits and Type of Current or Most Recent Occupations

Among Those Whose Occupational Field Is--*	Job-Related Benefits			
	High	Moderate	Low	
Education	49	34	17	100%
Business	28	38	34	100%
Health	44	37	19	100%
Science and Math	66	29	5	100%
Arts	16	50	34	100%
Clerical	4	44	52	100%
Skilled	22	36	42	100%
Semi-skilled	4	32	64	100%

*See Table 14 for definitions.

Of more consistent relation to job benefits are various characteristics of the jobs themselves, regardless of the occupational field. If one looks down the column of percentages under "high" job-related benefits, compared with the column of percentages under "low" benefits, in Table 35, the percentages in the high column are consistently higher and often very much higher than those in the low column. A majority of people who attributed high job-related benefits to college are now in jobs which they characterize as being at a professional level, as providing them satisfaction with respect to their career progress, fitting

their long-range goals, offering good prospects for advancement, being with colleagues in the same field, having sufficient status and prestige, and such that they do not feel underemployed. About one-fourth of those who attributed low job-related benefits to college are also in jobs having these same characteristics.

Table 35

Relationships between Job-Related Benefits and Various Job Characteristics

Proportions Ascribing Various Characteristics to Their Jobs	Job-Related Benefits		
	High	Moderate	Low
Job is at a professional level	77	47	29
Job fits their long-range goals	61	39	27
Have sufficient status or prestige in their jobs	55	34	24
Job offers good prospects for advancement	60	41	24
Most of their colleagues are trained in same field	60	33	23
Skills are fully utilized in their job	39	20	12
Well paid compared to people of similar education	23	37	14
Satisfied with career progress	73	41	28
Do not feel underemployed	67	43	26

Being very satisfied with certain job characteristics is also related to the job benefits scale, but not as strongly, as indicated in Table 36. Half or a little more of the high group are very satisfied with such things as work relationships, responsibility, autonomy and independence, challenge, and variety, but so are a fourth to a third or more of the low group. The only really big difference between high and low groups is on the item "opportunity to use training," where 60% of the high group said they were very satisfied with that aspect of their job, compared with only 15% of the low group.

Table 36

Relationship between Job-Related Benefits and Satisfaction with Specific Job Characteristics

Proportions "Very Satisfied" with Specific Job Characteristics	Job-Related Benefits		
	High	Moderate	Low
Extent of responsibility	57	40	30
Challenge	53	39	28
Congenial work relationships	61	52	40
Autonomy, independence	54	43	34
Variety in activities	50	41	23
Status of position	49	33	21
Income	38	23	20
Opportunity to use training	60	33	15
Opportunity for creativity	39	29	20

Summary of Job Benefits

What emerges from this section is basically similar to the conclusions from the previous section: some major fields have more immediate job benefits than others, some fields of employment and some job characteristics are more clearly associated with high job benefits than with low job benefits. At the same time, the attribution of job benefits to college is unrelated to employment status (working full-time or part-time and/or also going to school), and moderately related to being very satisfied with certain aspects of one's job such as responsibility, challenge, etc.

One must remember that job benefits as defined here are limited to the seven items from the questionnaire which comprise the benefits scale. These are primarily immediate and short-range benefits. Many other outcomes or benefits from college doubtless have long-range utility in the world of work; and we shall examine some of them in the next two sections. The job benefits items we used all correlated positively with one another in the minds of the graduates, and they had little and in some cases no correlation with a broader set of benefits related to intellectual, cultural, personal, and social development.

Intellectual-Cultural Benefits of College

Earlier in this report we noted that intellectual and academic reasons for attending college were regarded as much more important than economic or vocational reasons. In this section we see that the graduates also attribute much more value to college with respect to intellectual and cultural development than they did to utilitarian job benefits.

There were seven items in the questionnaire that focused directly on various intellectual and cultural benefits of college. These items, and the responses to them, are shown in Table 37. From a majority to a very large majority said that college had been "very useful" in increasing their general knowledge, their ability to think clearly and critically, and their cultural perspective. Very few graduates said that college was "not useful" in any of these ways. Indeed a substantial majority (from 71% to 99%) attributed some or much benefit to college with respect to all of the seven items.

Table 37

Intellectual-Cultural Benefits

Benefits	Percent Indicating-- Very Useful	Somewhat Useful	Not Useful	
Increased general knowledge	74	25	1	100%
Increased critical thinking or analytical skills	63	33	4	100%
Increased ability to think clearly	60	34	6	100%
Increased cultural perspective	53	35	12	100%
Improved writing ability	37	44	19	100%
Increased political awareness	30	45	25	100%
Increased creativity	25	46	29	100%

Intellectual-Cultural Benefits Scale

The salience and strength of these intellectual and cultural benefits became even more clearly evident when we plotted a distribution of scores on these seven items. The score, as in previous scales, consists of adding the responses to each item, with "very useful" counting two points, "somewhat useful" counting one point, and "not useful" zero. As Table 38 shows, the "high" group, defined by the top four scores (11 to 14), comprises 41% of the total group. If the low group was defined in the same fashion, namely the lowest four scores (0 to 3), there would be only 27 people in it, comprising only 3% of the total group. Even by extending the low group to scores of six and below,

Table 38

Intellectual-Cultural Benefits of College
Distribution of Scores

Score	N	
14	52	High group 41%
13	89	
12	95	
11	105	
10	87	Moderately high group 43%
9	102	
8	87	
7	76	
6	43	Moderately low group 16%
5	33	
4	31	
3	14	
2	9	
1	2	
0	2	

only 16% of the total group is included. With this definition, the typical person in the low group checked about three of the items as "not useful," about two or three items as "moderately useful," and one or two items as "very useful." In contrast, those classified in the high group typically checked five or six items as "very useful" and the rest as "somewhat useful." Given these definitions it is appropriate to call the middle group a "moderately high" group and to call the low group a "moderately low" group.

The responses of men and women to these items were quite similar. In the moderately low group there were 17% of the men and 16% of the women. In the moderately high group there were 46% of the men and 40% of the women. In the highest group there were 37% of the men and 44% of the women.

Major Fields and Intellectual-Cultural Benefits

Comparisons by major fields, shown in Table 39, reveal sharp differences between arts and humanities on the one hand and engineering on the other. Only 16% of the engineering majors score in the high group, compared with 55% of those who majored in arts or humanities. These results are a complete reversal of the data for job-related benefits, previously reported in Table 32, where nearly four-fifths of the engineers were in the high group compared with 19% of the arts and humanities majors. Similar differences are evident between science majors (both biological and physical sciences) and social science majors. With respect to intellectual-cultural benefits more of the social science majors are in the high group; with respect

to job-related benefits (see Table 32), more of the science majors were in the high group. Despite the contrasts between these groups, it is important to emphasize that two-thirds of the engineering majors and more than three-fourths of the science majors attributed high or moderately high intellectual-cultural utility to their college experience; and two-thirds of the arts and humanities and social science majors attributed high or moderate job-utility to their college experience.

Table 39

Relationship between Intellectual-Cultural Benefits of College and Undergraduate Major Field

Among Those Who Majored In--	Intellectual-Cultural Benefits: High	Moderately High	Moderately Low	
Arts or humanities	55	33	12	100%
Social sciences	42	44	14	100%
Biological sciences	31	47	22	100%
Physical sciences	29	48	23	100%
Engineering	16	52	32	100%
All other fields	33	50	17	100%

Extra-curricular Activities

Participation in various sorts of extra-curricular activities in college has relatively little relationship to the intellectual-cultural utility attributed to the college experience. There is, nevertheless, some relationship in that the proportion of participants is generally a little higher among those in the high benefit group than in the moderately low benefit group. If one takes an average of the percentages in each column in Table 40, the average is 26% for the high group, 24% for the moderately high group, and 21% for the moderately low group. Particular activities in which the difference is more than five percentage points between the percent of participants among the high benefit group and the moderately low benefit group are ones related to academic, social, and political extra-curricular topics.

Leisure Time Activities

Among a list of post-graduate leisure time activities included in one part of the questionnaire there were three which had some relevance to intellectual and cultural pursuits. These were attending cultural events, reading for pleasure, and reading to improve oneself. In each instance, the proportion of graduates who said they engaged in those activities "frequently" was greater among the high benefit group than among the moderately low benefit group. These results are shown in Table 41. Although the differences between high and moderately low groups are not large, they are consistent in showing some continuity of intellectual-cultural interests from college to post-college years.

Table 40

Relationships between Intellectual-Cultural Benefits and Participation in College Activities as Undergraduates

Proportion Who Participated in Different Activities--	Intellectual-Cultural Benefits: High	Moderately High	Moderately Low
Cultural (theater, arts, music)	25	23	20
Social (fraternity, sorority, special interests)	37	30	27
Political (student government, club offices)	20	16	13
Religious	19	18	14
Communications (publications, radio, TV)	11	6	8
Academic (academic society, honors programs)	37	33	25
Athletics (intercollegiate, intramural)	36	40	37

Table 41

Relationships between Intellectual-Cultural Benefits and Leisure Activities

Percent Who Checked That They "Frequently" Participated	Intellectual Benefits: High	Moderately High	Moderately Low
Read for Pleasure	66	51	54
Read to improve self	53	41	34
Attend cultural events	53	47	41

Summary of Intellectual-Cultural Benefits

If very many graduates had attributed little or no utility to their college education with respect to intellectual and cultural development, one would no doubt be shocked by such a result. The fact, however, is that only 3% of the total group of graduates responded to the seven items in the intellectual-cultural scale in a manner that could be classified as "little or no utility." If responses to the scale were normally distributed, the middle score in the distribution would be seven. The actual responses showed only 16% scoring below this level, compared with 75% scoring above it. Because so many responses were so positive and favorable we could not classify them meaningfully into high, moderate, and low groups. Instead, we had to describe them as high, moderately high, and moderately low.

Within this set of generally to strongly positive responses, there were nevertheless some differences among those who had majored in different fields in college. The direction of these differences was exactly opposite to differences by major fields in job-benefits and in vocational motivation. Scoring at the top were those who majored in arts or humanities, followed by social science majors, then by biological and physical science majors, and by engineers at the bottom.

Other relationships with intellectual-cultural benefits will be discussed in a later section of this report.

Personal Development Benefits of College

Another set of responses to the questionnaire item which read, "Looking back on your college education, please indicate the extent to which the following have been useful," are ones which we have grouped under the heading of personal development benefits. These can be regarded as increased competence in various personal and interpersonal traits and behavior. The items and responses to them are given in Table 42. To each of the items listed the typical response was "somewhat useful." On the average, the response "very useful" was checked a little more frequently than the response "not useful" (29% vs. 24%). The highest proportion checking very or somewhat useful is to the item "improved self-confidence" (85%); the lowest (70%) is to the item "increased leadership ability." To the other three items--perseverance, self-discipline, and getting along with people--the distribution of responses are nearly identical.

Personal Development Benefits Scale

The manner of obtaining a score on this set of five items is the same as we have described previously. The distribution of scores (zero meaning that "not useful" was checked to all five items, and ten meaning that "very useful" was checked to all five items) is shown in Table 43. The frequencies shown in the Table form a normal distribution, with the highest frequency exactly at the middle score of 5 and the frequencies gradually diminishing as one goes higher or lower from this midpoint. Consequently, we defined the high or low groups in exactly the same way--the high group being the four highest scores, 7 to 10, and the low

Table 42

Personal Development Benefits

Benefits	Percent Indicating-- Very Useful	Somewhat Useful	Not Useful	
Improved self-confidence	35	50	15	100%
Increased perseverance	30	48	22	100%
Improved self-discipline and ability to follow rules	28	46	26	100%
Taught me how to get along better with people	28	46	26	100%
Increased leadership ability	24	46	30	100%

Table 43

Personal Development Benefits of College
Distribution of Scores

Score	N	
10	37	
9	52	
8	81	High group 33%
7	104	
6	117	
5	134	Moderate group 43%
4	101	
3	76	
2	52	
1	43	Low group 24%
0	30	

group being the four lowest scores, 0 to 3. This means that, with minor exceptions, everyone in the high group marked most of the items "very useful"; and everyone in the low group marked most of the items "not useful."

Overall, as the distribution indicates, 33% were classified as "high," 43% as "moderate," and 24% as "low." Comparing the responses of men and women, we found no differences in the "moderate" group; but there were somewhat more women than men in the high group (36% vs. 29%), and somewhat more men than women in the low group (28% vs. 22%).

Major Field and Personal Development Benefits

The distribution into high, moderate, and low groups on the personal development scale for each of the major fields is listed in Table 44. The only major field which stands out as unlike most other fields is engineering. Among the graduates who had majored in engineering, 16% scored in the high group on the personal development benefits scale, and 47% scored in the low group. In all the other major fields, the proportion in the low group was close to one-fourth, in contrast to nearly one-half for the engineers.

These personal development characteristics--self-confidence, perseverance, leadership, etc.--are not specific objectives of academic programs or major field curricula in the sense that physics, economics, French, philosophy or other fields are meant to teach leadership, self-confidence, or any of the other personal traits included in the scale of personal development benefits. Rather, such traits are more appropriate regarded as potentially influenced by the total college experience--

by discovering that one can do the necessary work to get good grades, by associations with a variety of other students on the campus, by opportunities for leadership in extra-curricular activities, and by other sorts of involvement in campus affairs. Different major fields are selectively attractive to different kinds of students.

Table 44

Relationship between Personal Development Benefits of College and Undergraduate Major Field

Among Those Who Majored in--	Personal Development Benefits			
	High	Moderate	Low	
Arts or humanities	41	38	21	100%
Social sciences	30	44	26	100%
Biological sciences	26	50	24	100%
Physical sciences	32	43	25	100%
Engineering	16	37	47	100%
All other fields	34	42	24	100%

Extra-Curricular Activities

Selective attraction also operates in extra-curricular activities. But in the nature of many extra-curricular activities the opportunities for developing leadership and for relating well to other people are obvious. It is not surprising, then, that involvement in some kind of extra-curricular activities is related to scores on the personal development scale. As Table 45 illustrates, participation in "social" activities (fraternity, sorority, and special interest groups) has the

clearest relationship, with 42% of people in the high group, compared with 21% in the low group, indicating that they had participated in those extra-curricular activities--a difference of 21 percentage points between the high and low groups. In six of the seven activities listed, the percent of people from the high group who had participated was larger than the percent from the low group. These results are consistent with other studies of college students in revealing a generally positive association between the extent of involvement in campus life and the attainment of goals related to personal and social development.

Table 45

Relationship between Personal Development Benefits and Participation in College Activities as Undergraduates

Proportion Who Participated in Different Activities--	Personal Development Benefits		
	High	Moderate	Low
Cultural	26	23	21
Social	42	31	21
Political	22	15	15
Religious	22	18	13
Communications	8	7	11
Academic	39	34	25
Athletics	41	37	35

Summary of Personal Development Benefits

Here, as in the previous section on intellectual-cultural benefits, we have limited our reporting to differences in benefits that might be related to the students major field and to their participation in extra-curricular activities; and we found that the direction of differences was similar to that reported for the intellectual-cultural benefits scale.

Relationships Among Educational Benefits

"Overall, how satisfied are you with:
college entered in 1970
last college attended"

For the UC graduates whose responses we have described thus far in this report, the first and last college attended are the same in 87% of the cases, and in all cases both the first and last college was a UC campus. The answers were as follows:

Very satisfied	62%
Somewhat satisfied	33%
Not satisfied	5%

Because so few of the graduates said they were "not satisfied"—only 41 people out of a total of 827—the relationships between satisfaction and other measures or indexes are necessarily reduced by the lack of variability on this measure of satisfaction. Everyone is more or less satisfied, and most are very satisfied. This strongly positive response is consistent with another statement in the questionnaire which read "I'm glad I had the college education I did," a statement which referred

to the graduates' current or most recent job, and which was endorsed by 74% of these former students. These observations are made at the outset of this section simply to make the point that the various relationships which we shall report exist within an overall context of satisfaction with college.

In the preceding three sections we looked at three types of educational benefits--job benefits, intellectual-cultural benefits, and personal development benefits. The statements comprising these indexes or scales were all among a list of statements in the questionnaire to which the graduates could respond by checking "very useful," "somewhat useful" or "not useful" with respect to the college education they had.

The statements we classified into each of the three types of benefits were not only clearly related in content to the type but were also empirically related to the type. All of the job benefit statements correlated positively with each other (average inter-item correlation of .39); all of the intellectual-cultural benefits statements correlated positively with each other (average inter-item correlation of .34); and so did all of the personal development benefits statements (average inter-item correlation of .37). Consequently, each score (job, intellectual, or personal) was based on items which belonged together empirically as well as rationally.

We have expanded the data relevant to job benefits by including two additional items--namely, job satisfaction, and the relation of the job to the student's major field--both of which could be viewed as desirable outcomes in the sense that one hopes college graduates will have satisfying jobs and jobs that are related to what they studied in

college. These three job related outcomes are all positively related to one another, as the following correlations indicate:

	Job Satisfaction	Relation of Job to Major	Job Benefits
Job Satisfaction	x		
Relation of Job to Major	.51	x	
Job Benefits	.48	.67	x

But none of these job-related outcomes are related to the measure of intellectual-cultural outcomes of college, as the next set of correlations demonstrate:

Job Satisfaction and Intellectual-Cultural Benefits	.03
Relation of Job to Major and Intellectual-Cultural Benefits	-.09
Job Benefits and Intellectual-Cultural Benefits	.06

Basically, then, the attribution of intellectual-cultural benefits to one's college experience is independent of job benefits, job satisfaction, and the relation of job to major field. Moreover, none of the separate items comprising the intellectual-cultural benefits scale correlated higher than .10 with any of the items in the job benefits scale. In fact, the average inter-item correlation between the two sets was .02.

The attribution of personal development benefits to college has some positive relationship with job benefits, a slight positive relationship with job satisfaction, and close to zero correlation with the

relation of jobs to major field. Here are the correlations:

Job Satisfaction and Personal Development Benefits	.14
Relation of Job to Major and Personal Development Benefits	.02
Job Benefits and Personal Development Benefits	.24

Between personal development benefits and intellectual-cultural benefits there is a strong positive relationship--a correlation of .70.

All of the desired and desirable outcomes we have considered in this section contribute to one's overall satisfaction with the college experience. The various job relevant benefits as well as the intellectual and personal enrichment benefits each correlate about the same (from .25 to .37) with overall college satisfaction.

Non-Graduates and Non-UC Graduates

In the total sample of 1080 who filled out the questionnaire, there were 135 who had not completed their bachelor's degree and 118 who had graduated from some institution outside the UC system. Who are they? Where are they? And what are their views about the utility of education?

Non-Graduates

It would be misleading to describe the first group as non-graduates if one meant by the designation that they were drop-outs. It would be fairer to describe most of them as individuals who have "not yet graduated": for 62% of the group are still going to school. One-fifth

are full-time students not in the labor force; and 42% are working full-time or part-time while continuing to go to school. Of those who are working full-time or part-time and not in school (32% of the group) it is possible that some may return to school later to complete their bachelor's degree and others may not.

Many of the items in the survey are of limited relevance for this group of "non-graduates and not yet graduates." Job benefits, relation of job to major field, the relevance of education for work, and other benefits attributed to education necessarily refer to education not yet completed, and to jobs which for many people may be interim positions, and for which college graduation is not required. Some of the people in this group are still enrolled at one of the UC campuses; others have transferred. For 36% of them the last college attended was not UC.

On nearly all of the items in the questionnaire related to the utility of education for work, for intellectual, cultural, and personal development, and to satisfaction with college, the responses of the non-graduate group are distinctly less positive than the responses of the UC graduates. Here are some of the major differences:

Job benefits scale:

% scoring in the high group -	14% vs. 31% UC grads
% scoring in the low group -	59% vs. 28% UC grads

Job satisfaction:

% saying "very satisfied" -	28% vs. 37% UC grads

Relation of job to major field:

% "closely related" -	25% vs. 36% UC grads
% "not related" -	58% vs. 38% UC grads

Intellectual-cultural benefits of college:

% in the high benefit group -	23% vs. 41% UC grads
% in the moderately low benefit group -	35% vs. 16% UC grads

Personal development benefits of college:

% in the high benefit group -	19% vs. 33% UC grads
% in the low benefit group -	45% vs. 24% UC grads

Satisfaction with last college attended:

% very satisfied -	44% vs. 62% UC grads

More specifically, here is a list of particular items in the questionnaire to which responses of the non-graduate group were substantially less positive than the responses of the UC graduates:

College was "very useful" in:

increasing chances for finding a good job -	21% vs. 39% UC grads
providing knowledge and skill used in current job -	16% vs. 34% UC grads
General college study contributed "very much" or "somewhat" to knowledge and skills used in current job -	62% vs. 78% UC grads

Proportions ascribing various characteristics to their present job:

fits long-range goals -	32% vs. 43% UC grads
job is at professional level -	37% vs. 52% UC grads
satisfied with career progress -	35% vs. 48% UC grads

Proportions "very satisfied" with jobs as to:	
opportunity to use training -	21% vs. 37% UC grads
challenge -	28% vs. 40% UC grads
competency of colleagues -	23% vs. 38% UC grads
Proportions saying college was "very useful" as to:	
improved self-confidence -	21% vs. 35% UC grads
increased perseverance -	17% vs. 30% UC grads
getting along better with people -	16% vs. 28% UC grads
Proportions saying college was "very useful" as to:	
increased general knowledge -	61% vs. 74% UC grads
increased critical thinking and analytical skills -	34% vs. 63% UC grads
increased ability to think clearly	44% vs. 60% UC grads
improved writing ability -	27% vs. 37% UC grads
increased cultural perspective -	39% vs. 53% UC grads
increased political awareness -	20% vs. 30% UC grads
Percent saying, in reference to their current job, "I'm glad I had the college education I did" -	57% vs. 74% UC grads

Despite the above lists of major differences, the work status of the non-graduates is as satisfying as it is for the graduates in many respects. For example, with respect to such job characteristics as feeling well paid compared with others, supervising people, having decision-making responsibility, having status in their position, describing their future prospects as good, and believing that their

skills are fully utilized, there are no major differences between the responses of graduates and non-graduates. Moreover, there are no major differences in the proportions of graduates and non-graduates who said that they are "very satisfied" with income, status of position, autonomy, variety, policy-making power, advancement opportunities, responsibility, and job security. On those items none of the differences between graduates and non-graduates were greater than six percentage points.

As to the occupational fields in which the non-graduates are employed, there are three categories that account for nearly all the differences between them and the UC graduates. In the field of education there were 17% of the UC graduates, compared with 6% of the non-graduate group. In the field of math and sciences (which also includes engineering, computer programing, and statistics) there were 15% of the UC graduates, compared with 5% of the non-graduate group. In fields described as clerical, skilled, and semi-skilled there were 23% of the UC graduates compared with 36% of the non-graduate group. There were no differences in the total proportions employed in business fields, health related fields, or in the arts. Among the men, however, there was a higher proportion employed in the arts among the non-graduates (12%) than among the UC graduate men (5%). Among the women non-graduates 25% were employed in clerical fields, compared with 15% of the women UC graduates.

When the non-graduates were asked what their major field was, or is, in college, their responses showed a somewhat different distribution among the fields than was true for the UC graduates. There were more majors in humanities or arts (34% vs. 27% for UC grads); and fewer majors in social sciences (21% vs. 36% for UC grads). Also, a

category identified as "professional" included 10% of the non-graduate group; and presumably all or most of those individuals were at some institution other than a UC campus. There were no differences between the groups in the proportions majoring in physical or biological sciences.

To some extent, the non-graduate group can be described as having less dedication and determination about college work--both vocationally and intellectually. Fewer of them (52% vs. 62% for UC grads) said that "to get a better job" was a very important reason in their decision to go to college. Fewer of them also said that academic-intellectual reasons were very important: for example 40% vs. 58% for UC grads said that "to improve academic abilities" was very important; 65% vs. 71% for UC grads said that "to gain a general education and appreciation of ideas" was very important; and 66% vs. 76% for UC grads said that "to learn more about things that interest me" was very important. Also, 34% vs. 15% for UC grads said that they had no career plans when they left college. And finally, as noted previously, fewer of them thought that college had been very useful in giving them improved self-confidence or increased perseverance--a feeling that may be related to the fact that 40% of them, compared with 17% for UC grads, said their college grades were B- or lower.

Those Who Graduated Elsewhere

The picture is quite different when we look at the present status of the people who started college at one of the four UC campuses but subsequently graduated from an institution outside the UC system. Of these graduates 42% completed their bachelor's degrees at one of the

California State Colleges and Universities, with the remaining 58% having gone to any one of a rather wide assortment of colleges in California and other parts of the country. With relatively few exceptions, the colleges and universities to which these UC students transferred and from which they graduated are ones known to have a variety of undergraduate major programs with very specific vocational training purposes--programs in business, in allied health fields, etc. They did not transfer to universities with comparably rigorous academic programs; rather, they transferred to institutions with less rigorous academic programs and more clearly relevant job training programs.

The consequence of this pattern of transfers from UC to other schools is that those who transferred and graduated attribute more job-relevant benefits to their college experience. Moreover, the transfers to other institutions are ones who had greater concern for potential vocational benefits in the first place.

The relevant facts are these:

Vocational motivation scale:	
% scoring in the high group	34% vs. 26% UC grads
% scoring in the low group	20% vs. 34% UC grads
Reasons "very important" for going to college:	
To get a better job	73% vs. 62% UC grads
Reasons "very important" for choosing a major:	
To get a higher paying job	24% vs. 10% UC grads
To get a more meaningful job	58% vs. 39% UC grads

Time of career choice:

Before college	no difference
During college	48% vs. 40% UC grads

What they subsequently majored in after they transferred also reflected specific vocational aims. For example, 9% of those who graduated elsewhere said they majored in business. This is not an available undergraduate major at UC. In addition, 14% said their major was "professional," meaning allied health fields such as nursing, medical technology, pre-med, pre-dent, occupational therapy, etc. Again, these are not undergraduate major departments at UC. Moreover, of those who graduated elsewhere, fewer of them majored in the physical or biological sciences (15% vs. 23% for UC grads), and fewer majored in social sciences (23% vs. 36% for UC grads).

These differences in major field are also reflected in the occupational fields in which they are employed. A slightly larger proportion are employed in business (21% compared with 17% for UC grads); and a much larger proportion are employed in allied health fields (18% vs. 7% for UC grads). These differences are even sharper if one considers only the women graduates, where 17% are in business compared with 11% for UC grads, and 20% are in allied health fields compared with 7% for women UC grads. One result of these shifts is that fewer women who graduated outside the UC system are currently employed in clerical, skilled, and semi-skilled positions (14% vs. 24% for UC women grads).

All these differences in vocational motivation, in major fields, and in occupations are translated into a more positive opinion about

the vocational utility of college. For example:

Job satisfaction:	
% very satisfied	44% vs. 37% UC grads
% not satisfied	no difference
Job benefits scale:	
% scoring in the high benefits group	45% vs. 31% UC grads
% scoring in the low benefits group	18% vs. 28% UC grads
Relation of job to major field:	
closely related	48% vs. 36% UC grads
Frequency of use of college courses in current job--percent checking "almost always" or "frequently":	
courses in major	48% vs. 38% UC grads
courses in minor	37% vs. 22% UC grads
other undergraduate courses	25% vs. 19% UC grads

As to specific features of their current jobs and aspects of those jobs with which they are very satisfied there are few differences between UC grads and those who graduated elsewhere. There are no differences in feeling well paid, in having sufficient status, in satisfaction with career progress, in future prospects, in having jobs that fit long-range goals, or fully utilizing their skills; and no differences of any importance with respect to income, status of position, autonomy, variety, policy-making power, competency of colleagues, opportunities for advancement, challenge, responsibility, or opportunity to use training. The only differences in job characteristics and satisfactions are that more of their colleagues are

trained in the same field (53% vs. 39% for UC grads), that their jobs are at a professional level (64% vs. 52% for UC grads), and that their jobs have "job security" (54% vs. 40% for UC grads).

With respect to the intellectual-cultural benefits of college, there were no differences between the responses of UC graduates and those who graduated elsewhere. On the personal development benefits scale, there was no difference between the two groups in the proportion classified in the low benefit group; but there was a difference in the high group, favoring those who graduated elsewhere (41% vs. 33% for UC grads). This difference was almost entirely accounted for by two of the items as follows: improved self-confidence (45% saying "very useful" vs. 35% for UC grads), and increased perseverance (42% saying "very useful" vs. 30% for UC grads).

By and large, the people who left UC and subsequently graduated from another institution appear to have got what they sought--an opportunity to major in some specifically relevant vocational program, a job more likely to be related to their major field. Perhaps they also sought an academic environment in which their likelihood of success might be greater; and since they did succeed they came out with a greater feeling of self-confidence. They did, in fact, succeed in making better grades: 62% said their grades were B+ or better, compared with 55% for UC grads; and 11% said their grades were B- or lower, compared with 17% for UC grads. They were no less positive than the UC graduates about the intellectual and cultural benefits of college; but they were no more positive than the UC graduates in saying "I'm glad I had the college education I did."

In spite of the added vocational benefits and the added self-confidence to which some of them attested, when they responded to the question "Overall, how satisfied are you with the last college you attended?," fewer of them were "very satisfied" (49%) compared with those who remained at UC (62%).

Concluding Comments

Of the 1080 UC freshmen from the entering class of 1970 who replied to the questionnaire they received in the spring of 1977, nearly nine-tenths of them had earned a bachelor's degree. Among those who graduated from UC, a fifth had already attained an advanced degree, and another two-fifths were working on one. Thus, about 60% of the graduates have continued their education into graduate and professional school. Another fifth, not presently in school, plan to continue their education sometime later. In all three groups we studied--the UC graduates, those who graduated from some other institution, and those who had not yet attained a bachelor's degree--there were roughly 60% attending school at the time they filled out the questionnaire, nearly seven years after their entrance as freshmen. This high frequency of continued involvement in education is one of the most significant revelations from the present survey. Even among those whose college experience to date has been relatively unsuccessful (they haven't graduated, they made poor grades, and they were less satisfied than others with the vocational, intellectual-cultural, and personal utility of college), nearly half (47%) said "prospects are good that I will

re-enter college or seek occupational retraining sometime after I'm 30 years old."

The counterpart and contrast to this high frequency of continued education is the relatively low frequency of full-time employment unaccompanied by enrollment in school (30%). The reason, of course, is not any lack of job opportunities; it is simply that education for the professions is not completed with a bachelor's degree. If we count those who have full-time jobs, whether or not they are also going to school, we find that it includes 51% of the UC graduates. When we reported responses about job satisfaction, job benefits, relation of job to major field, etc., we included all jobs--temporary ones, interim ones, part-time ones--in short, jobs which many have no intention of keeping and which are not the jobs they will have when they finish their training. This means that percentages showing dissatisfaction with jobs and related matters are somewhat exaggerated beyond what they would normally be. Here are two examples of this effect, comparing only those who have full-time jobs against the total group who have any sort of jobs:

Job Satisfaction	Full-Time Job Holders	All Job Holders
Very satisfied	41	37
Somewhat satisfied	43	41
Not satisfied	16	22
	100%	100%

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Relation of Job to Major Field	Full-Time Job Holders	All Job Holders
Closely related	40	36
Somewhat related	27	26
Not related	33	38
	100%	100%

In both examples, the status of those who have full-time jobs is "better" than the total group.

Granted that a full assessment of education and work cannot be made until education has been completed, and that the current assessment encompasses interim work and part-time work as well as full-time employment, the picture of these former UC students that emerges is nevertheless a basically positive evaluation of the vocational benefits of education. Of those who graduated from UC, unemployment was 3% compared with a national figure of 13% for 20 to 24 year olds as a group. For most of them, the kind of jobs they held were satisfying in many respects: more than 80% said that they were very or somewhat satisfied with their jobs as to income, responsibility, variety, challenge, autonomy and independence, and the competence of their colleagues; and seven out of ten expressed similar satisfaction with opportunities for creativity, for advancement, and for the use of their training. Three-fourths of them said "I'm glad I had the education I did," in reference to their current or most recent jobs. Moreover, these overall favorable figures include the responses of people who said that economic and vocational reasons for coming to college and for choosing a major were of little or no importance to them (34%), and people who said their

current or most recent job was not related to their major field of study in college (38%), and people who said that they did not make a career choice until after they graduated (about one-third). The basic data from this study simply do not support the strident assertions one sometimes hears about the irrelevance of higher education for work, or the sad state of the job market for college graduates, or the particularly sorry plight of those who pursue a liberal arts undergraduate program. The undergraduate major for about three-fourths of the respondents was a traditional liberal arts field--humanities, sciences, and social sciences.

There were, as one might expect, closer connections between education and work among those who came to college with strong economic and vocational motives, who had made a career choice before or during college, and who majored in a field having direct vocational training purposes: for they were subsequently more likely to attribute immediate job benefits to their education, to have jobs related to their major field, and to have higher job satisfaction. On the other hand, those who said that economic and vocational reasons for attending college were of little or no importance to them, who did not make an early career decision, and who majored in fields which traditionally do not have direct vocational training purposes--namely, humanities, arts, and social sciences--were subsequently more likely to attribute intellectual, cultural, and personal development benefits to their college experience. These are not opposite or conflicting results, however. To some extent they are independent. One result does not preclude the other: for two-thirds of the first group attribute high and moderately high

intellectual-cultural benefits to college, and two-thirds of the latter group attribute high or moderate job benefits to college.

In a larger and more lasting sense, what we have called intellectual, cultural, and personal benefits are also benefits for employment and occupational development. Breadth of knowledge and cultural perspective, the ability to think clearly, critically, and analytically, the traits of perseverance, self-discipline, and self-confidence--all these are surely fundamental to achievement in a career and to employment at a high level of responsibility. It is precisely these characteristics which former students rate most highly among the benefits attained from their higher education. Professors and administrators would also agree that these are among the primary goals of undergraduate education.